

REMARKS

Applicant appreciates the Examiner's indication of the allowability of Claims 27-32 if rewritten in independent form to include all of the features of the base claim and any intervening claims. Applicant has rewritten Claims 27-32, as suggested.

The Examiner also indicated that Claims 14-19 would be allowable if rewritten or amended to overcome the objections raised under 35 U.S.C. § 112. Applicant has amended these claims in order to address the §112 issues pointed out by the Examiner.

Applicant has cancelled Claims 1-13, 20-23 and 33-37 as being drawn to a non-elected invention. These claims are canceled without prejudice toward filing a divisional application or applications. Claim 16 was canceled since the features of this claim were incorporated into amended Claim 14.

The Examiner substantively rejected Applicant's Claims 24 and 25 under 35 U.S.C. § 102(b) as being anticipated by Smith (U.S. Patent No. 5,908,557). Applicant's Claim 26 was rejected under 35 U.S.C. § 103(a) based upon Smith in view of Grant (U.S. Patent No. 5,330,658). Applicant has amended independent Claim 24 in view of the Examiner's remarks. Reconsideration of the rejection is requested.

Applicant's amended Claim 24 describes a method of removing arsenic having various valence states from arsenic contaminated waters "without a pre-oxidation stage". This feature of the invention is now included in the amended language of Claim 24. In Smith's process (U.S. 5,908,557), the As(III) oxidation and adsorption is a two-step process: 1) oxidation is achieved by passing the contaminated water through a vessel containing water-insoluble oxidizing medium with a reaction of a KI/I₂ solution and polymerized 2 or 4 vinyl C₁-C₄ N-alkyl pyridinium, preferably N-methyl pyridinium moieties, and 2) the adsorption of native and oxidized As (V) is achieved by passing the effluent through a vessel containing N-methyl pyridinium moieties. This is a two step process.

Applicant's process, which utilizes a zeolite adsorbent coated with nanophase Mn-Fe oxide, is a single step process which can be applicable for both As(III) and As(V). The Smith resin is also subjected to physical degradation at the temperature of 100 psi and 100°C. The 100 psi pressure could develop while back washing the vessel. For household filters, some companies make blocks that are required to withstand temperatures in excess of 100°C. Therefore, the Smith process suffers from a significant limitation. Applicant's medium, on the other hand, is unaffected.

The Etzel- Kurek patent (US 5,591,346) which was included in the search of the prior art, but not cited, is also a two step process. The As(III) water is first treated with an oxidizing agent (chlorine, hydrogen peroxide) before being passed through an ion exchange column. Applicant's invention, as described in amended Claim 24, does not need a pre-oxidation stage.

The Grant et al. reference (U.S. 5,330,658), also listed as prior art but not cited, differs from Applicant's claimed invention in that the described process is a co-precipitation using ferrous sulfate and a coagulation process using a hydroxide. Applicant's claimed invention is an adsorbent process and the oxidation and sorption of As(III) is achieved in one step without a pre-oxidation stage. Also, in Applicant's medium Mn is not present as a separate Mn oxide phase but the Mn(III) is replacing/substituting for Fe(III) in the coated nanophase oxide. Note that Applicant's Claim 15 has been amended to explicitly recite this feature of the invention.

Accordingly, Claims 14- 19, 24-26 and 27-32 are thought to be allowable over the art of record and an early notification of the same would be appreciated.

No additional fee is thought to be due at this time for the continued prosecution of this application.
If any additional fee is due, please charge the same to Deposit Account No. 50-2555 (Whitaker,
Chalk, et al.).

Respectfully submitted,

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